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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/935,018	08/22/2001	Edward Steketee	10010838-1	9187

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AGILENT TECHNOLOGIES, INC.  
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EXAMINER

SOHN, SEUNG C

ART UNIT PAPER NUMBER

2878

DATE MAILED: 03/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/935,018

Applicant(s)

STEKETEE ET AL.

Examiner

Seung C. Sohn

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 18-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 27-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other:

## DETAILED ACTION

### *Election/Restrictions*

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

**Species I** : Fig. 1, claims 1-17 and 27-43.

**Species II** : Fig. 8, claims 18-26.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claim is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with Ms. Cynthia Mitchell on March 17, 2003 a provisional election was made with traverse to prosecute the invention of Species I, claims 1-17 and 27-43. Affirmation of this election must be made by applicant in replying to this Office action. Claims 18-26 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the mirror in claim 3 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Objections***

4. **Claim 31** is objected to because of the following informalities:

On claim 31, line 2, "fiducial" before "attached" should be changed to -- fiduciary -  
- or the like. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. ***Claims 1-17 and 27-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Nguyen (Patent No. US 5,389,789).***

Referring to claim 1, Nguyen shows in Figs. 1-2 the following elements of Applicant's claim:

- a) a first optical fiber (Fig. 2, 30, transmitter fiber optic cables), with a receiving end and a transmitting end (34), adapted to receive laser light at the receiving end and create a light beam at the transmitting end (Col. 4, lines 6-8);
- b) a second optical fiber (Fig. 2, 32, receiver fiber optic cables), with a receiving end and a transmitting end, positioned such that the receiving end of the second optical fiber receives the light beam and transmits light to the transmitting end of the second optical fiber (Col. 4, lines 14-21); and

c) an optical power detector (Fig. 1, 14, i.e., light sensor) optically coupled to the transmitting end of the second optical fiber, the optical power detector having an output indicative of the optical power of the light transmitted through the second optical fiber (Col. 3, lines 53-59);

wherein the edge (Fig. 2, 26) of the object (Fig. 1, 16) is detected when the object at least partially obstructs the light beam, causing a change in the output of the optical power detector (Col. 4, lines 1-6).

**Referring to claim 2**, Nguyen shows in Fig. 1 a laser light source (12) coupled to the receiving end of the first optical fiber (Col. 4, lines 6-8).

**Referring to claim 3**, Nguyen shows in Fig. 1 a mirror positioned to reflect said light beam; wherein the receiving end of the second optical fiber receives the light beam after it has been reflected by the mirror.

**Referring to claim 4**, Nguyen shows in Fig. 1 at least one of the first and second optical fibers is a single mode optical fiber.

**Referring to claim 5**, Nguyen discloses that the light beam is less than 10 microns in diameter (Col. 4, line 8).

**Referring to claim 6**, Nguyen shows in Fig. 1 said first and second optical fibers are held in opposition by a retainer.

**Referring to claim 7**, Nguyen shows in Fig. 1 said retainer further comprises: a frame; and at least one retaining block attached to the frame, wherein the first and second fibers are constrained to lie in one or more channels formed between the frame and the at least one retaining block.

**Referring to claim 8**, Nguyen shows in Figs. 1-2 the following elements of

Applicant's claim:

- a) a laser light source (12);
- b) a first optical fiber (the right optical fiber of 34), with a receiving end and a transmitting end, optically coupled to the laser light source at the receiving end and creating a light beam at the transmitting end;
- c) an optical power detector (14), providing an optical power signal as output;
- d) a second optical fiber (the left optical fiber of 34), with a receiving end and a transmitting end, optically coupled to the optical power detector at the transmitting end;
- e) a retainer (30, 32 transmitter and receiver fiber optic cables holders) for holding said first and second optical fibers such that the receiving end of the second optical fiber receives the light beam;
- f) a positioning stage for adjusting the relative positions of the object and the light beam (Col. 4, lines 1-3); and
- g) a controller operably coupled to the positioning stage and responsive to the optical power signal, the controller being configured to cause the positioning stage to position the object at a predetermined position relative to the light beam (Col. 3, lines 18-26).

**Referring to claim 9**, Nguyen discloses that the controller is manually operated.

**Referring to claim 10**, Nguyen discloses that the controller is an automatic controller.

**Referring to claim 11**, Nguyen discloses that the position of the object relative to the light beam is adjusted so that the optical power signal is greater than a lower threshold and less than an upper threshold (Col. 8, lines 12-19).

**Referring to claim 12**, Nguyen discloses that at least one of the lower and upper thresholds is proportional to a maximum power which is the optical power at the detector when no part of the object obstructs the light beam (Col. 5, lines 45-49).

**Referring to claim 13**, Nguyen discloses that the maximum power is predetermined by a calibration (Col. 4, lines 60-64).

**Referring to claim 14**, Nguyen discloses that the maximum power is measured periodically (Col. 5, lines 34-37).

**Referring to claim 15**, Nguyen discloses that at least one of the lower and upper thresholds is dependent upon a minimum power, which is the optical power at the detector when the light beam is completely interrupted by the object, and upon a maximum power, which is the optical power at the detector when no part of the object obstructs the light beam (Col. 5, lines 50-56).

**Referring to claim 16**, Nguyen discloses that the object is supported by the positioning stage (Col. 1, lines 13-18).

**Referring to claim 17**, Nguyen discloses that the retainer is coupled to the positioning stage (Col. 1, lines 19-23).



**Referring to claim 27**, Nguyen shows in Figs. 1-2 the following elements of

Applicant's claim:

a) an edge detector, said edge detector comprising:

aa) a first optical fiber (the right side of 34), with a receiving end and a transmitting end, adapted to receive laser light at the receiving end and create a light beam at the transmitting end;

ab) a second optical fiber (the left side of 34), with a receiving end and a transmitting end, positioned such that the receiving end of the second optical fiber receives the light beam and transmits light to the transmitting end of the second optical fiber; and

ac) an optical power detector (14) optically coupled to the transmitting end of the second optical fiber, the optical power detector having an output indicative of the optical power of the light transmitted through the second optical fiber (Col. 6, lines 3-15);

b) an object positioning stage for adjusting the position of the object in a first direction (Col. 4, lines 1-3); and

c) a detector positioning stage for adjusting the position the edge detector in a second direction;

wherein the edge of the object is detected when the object at least partially obstructs the light beam, causing a change in the output of the optical power detector (Col. 6, lines 3-15).

**Referring to claim 28**, Nguyen discloses that a controller operably coupled to the object positioning stage and the detector positioning stage and responsive to the optical power signal, the controller being configured to cause the object positioning stage and the detector positioning stage to position the edge of the object at a predetermined position relative to the light beam (Col. 5, lines 4-11).

**Referring to claim 29**, Nguyen discloses that an object holder mounted on the object positioning stage for holding one or more objects (Col. 1, lines 15-18).

**Referring to claim 30**, Nguyen discloses that a detector holder mounted on the detector positioning stage for holding the edge detector (Col. 2, lines 11-16).

**Referring to claim 31**, Nguyen discloses that an edge detector calibration fiducial attached to the detector holder at a known location for use in the calibration of the edge detector (Col. 4, lines 60-64).

**Referring to claim 32**, Nguyen discloses that the first direction is substantially perpendicular to the second direction (Col. 1, lines 19-23).

**Referring to claim 33**, it is inherent that the one of the object positioning stage and the detector positioning stage includes a linear servo-motor.

**Referring to claim 34**, Nguyen discloses the following steps of Applicant's claim:

- a) generating a light beam by passing light from a laser light source (12) through a first optical fiber (the left part of 34);
- b) receiving the light beam from the first optical fiber through a second optical fiber (the right part of 34);
- c) detecting the optical power of the received light; and

d) positioning the edge of the object within the light beam such that the optical power of the received light is greater than a lower threshold and less than an upper threshold.

**Referring to claim 35**, Nguyen discloses that at least one of the lower and upper thresholds is proportional to a maximum power which is the optical power at the detector when no part of the object obstructs the light beam.

**Referring to claim 36**, Nguyen discloses that the maximum power is predetermined by a calibration (Col. 4, lines 60-64).

**Referring to claim 37**, Nguyen discloses that the maximum power is measured periodically.

**Referring to claim 38**, Nguyen discloses that the positioning is performed by a positioning stage (Col. 1, lines 13-18).

**Referring to claim 39**, Nguyen discloses that the object is supported by the positioning stage and said positioning is achieved by moving the object.

**Referring to claim 40**, Nguyen discloses that the retainer is coupled to the positioning stage and said positioning is achieved by moving the retainer (Col. 1, lines 19-23).

**Referring to claim 41**, Nguyen discloses that controlling the positioning stage in response to the optical power.

**Referring to claim 42**, Nguyen discloses that said controlling comprises setting a target optical power and repeatedly moving the positioning stage by a distance proportional to the difference between the optical power and the target optical power

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until the optical power is greater than the lower threshold and less than the upper threshold (Col. 4, lines 32-38).

**Referring to claim 43**, Nguyen discloses that said controlling comprises setting a target optical power and repeatedly moving the positioning stage by a predetermined distance until the optical power is greater than the lower threshold and less than the upper threshold.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Lawrence (Patent No. US 5,796,097)** shows in Fig. 2 the flux path of the transmitted light flux using two optical fibers.

**Bacchi et al. (Patent No. US 6,256,555)** discloses fiber optic light transmission sensors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seung C. Sohn whose telephone number is (703) 308-4093. The examiner can normally be reached on Monday through Friday from 8:30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703) 308-4852. The fax phone numbers for

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the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SCS

SCS  
March 24, 2003



KEVIN PYO  
PRIMARY EXAMINER